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(54) VERTICAL MOSFET

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(57) Abstract:

PURPOSE: To increase avalanche breakdown strength by separating the outermost peripheral region of a lattice-like diffused layer from an inner diffused region, forming the outermost region in a floating state without providing a source region, and bringing a source electrode into contact with the surface of the outermost region.

CONSTITUTION: A P-type diffused region 24 is continuously formed in a lattice state on a N⁻ type semiconductor layer 23, an outermost peripheral P-type diffused region 25 is separated from an inner P-type diffused region 26 to be so diffused as to surround the region 26, and a source region 30 is not provided in the region 25. Thus, the region 25 is formed in a floating state not to be operated as a MOS cell. Since a source electrode 35 is in contact with both the region 24 and the source region 30 is formed in a pectinated state on the region 25 and an avalanche breakdown occurs in the region 25 in which the elongation of a depleted layer is unstable, a breakdown current flows to the region 25 and to the electrode 35 without flowing to the cell.

